CLAIMS

1. A micelle-containing organic polymer which comprises at least one peak in its X-ray diffraction pattern,

at least one pair of the diffraction angle ($2\theta$) and the lattice spacing (d) of said peak satisfying the relation (1) given below:

$$2\theta = 2\sin^{-1}(\lambda/2d) \qquad (1)$$

(in the formula, $\lambda$ represents the wavelength (nm) of the characteristic X-ray $K\alpha 1$)

and d being at least one value within the range of not less than 0.8 nm to not more than 150 nm.

2. The micelle-containing organic polymer according to Claim 1,

wherein the micelle is formed of a surfactant (A) in an organic polymer (B) constituting a polymer matrix.

3. The micelle-containing organic polymer according to Claim 2,

wherein the surfactant (A) is a cationic surfactant (A2).

4. The micelle-containing organic polymer according to Claim 3,

wherein the cationic surfactant (A2) is a quaternary ammonium salt type cationic surfactant (A2a).

5. The micelle-containing organic polymer according to any one of Claims 2 to 4

which contains the surfactant (A) in an amount of not less than 0.5 parts by weight per 100 parts by weight of the organic polymer (B).

6. The micelle-containing organic polymer according to any one of Claims 2 to 5,

wherein the organic polymer (B) is a thermosetting resin.

7. The micelle-containing organic polymer according to any one of Claims 2 to 5,

wherein the organic polymer (B) is at least one thermosetting resin (B2) selected from the group consisting of crosslinked/cured materials (B2-1) derived from thermosetting resins (B1a) obtainable by introducing a crosslinking reactive group into thermoplastic resins (B1); crosslinked resins (B2-2) derived from a constituent monomer of the thermoplastic resins (B1) and a crosslinking monomer; phenol resins (B2-4), and furan resins (B2-5).

8. A method of producing a micelle-containing organic polymer

which comprises forming micelles of the surfactant (A) in a monomer and/or prepolymer, and then subjecting the monomer and/or prepolymer to polymerization and curing.

9. An organic polymer porous material

which comprises the total volume of pores having diameters within the range of ± 40% of the pore diameter Dmax showing a maximum peak in a pore diameter distribution curve is not smaller than 50% by volume based on the total pores volume.

10. The organic polymer porous material according to Claim 9

which comprises at least one peak in its X-ray diffraction pattern,

at least one pair of the diffraction angle (2θ) and the lattice spacing (d) of said peak satisfying the

relation (1) given below:

$$2\theta = 2\sin^{-1}(\lambda/2d) \qquad (1)$$

(in the formula, $\lambda$ represents the wavelength (nm) of the characteristic X-ray K$\alpha$1)

and d being at least one value within the range of not less than 0.8 nm to not more than 150 nm.

11. The organic polymer porous material according to Claim 9 or 10,

wherein the pore diameter Dmax showing a maximum peak in the pore diameter distribution curve is not smaller than 0.3 nm but not larger than 100 nm.

12. The organic polymer porous material according to any one of Claims 9 to 11,

wherein the organic polymer is a thermosetting resin.

13. The organic polymer porous material according to any one of Claims 9 to 12,

wherein the organic polymer (B) is at least one thermosetting resin (B2) selected from the group consisting of crosslinked/cured materials (B2-1) derived from thermosetting resins (B1a) obtainable by introducing a crosslinking reactive group into thermoplastic resins (B1); crosslinked resins (B2-2) derived from a constituent monomer of the thermoplastic resins (B1) and a crosslinking monomer; phenol resins (B2-4), and furan resins (B2-5).

14. A method of producing an organic polymer porous material

which comprises forming micelles of the surfactant (A) in a monomer and/or prepolymer and then subjecting the monomer and/or prepolymer to polymerization and curing to give a micelle-containing organic polymer, and further removing the surfactant (A) from said polymer.

15. The method of producing an organic polymer porous material according to Claim 14,

wherein the surfactant (A) is removed by baking and/or solvent extraction.

16. A porous carbon material

which comprises the total volume of pores having diameters within the range of ± 40% of the pore diameter Dmax showing a maximum peak in a pore diameter distribution curve is not smaller than 50% by volume based on the total volume of pores.

17. The porous carbon material according to Claim 16

which comprises at least one peak in its X-ray diffraction pattern,

at least one pair of the diffraction angle (2θ) and the lattice spacing (d) of said peak satisfying the relation (1) given below:

$$2\theta = 2\sin^{-1}(\lambda/2d) \qquad (1)$$

(in the formula, λ represents the wavelength (nm) of the characteristic X-ray Kα1)

and d being at least one value within the range of not less than 0.8 nm to not more than 150 nm.

18. The porous carbon material according to Claim 16 or 17,

wherein the pore diameter Dmax showing a maximum peak in the pore diameter distribution curve is not smaller than 0.3 nm but not larger than 100 nm.

19. An electrode

which comprises the porous carbon material according to Claim 16.

20. An adsorbent which comprises the porous carbon material according to Claim 16.

21. A method of producing a porous carbon material which comprises forming micelles of the surfactant (A) in a monomer and/or prepolymer and then subjecting the monomer and/or prepolymer to polymerization and curing to give a micelle-containing organic polymer, and further baking said polymer for carbonization.